



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/581,004

07/17/2000

SHUSAKU OKAMOTO

MTS-3200US

2255

7590

07/24/2006

RATNER & PRESTIA
ONE WESTLAKES BERWYN SUITE 301
PO BOX 980
VALLEY FORGE, PA 19482-0980

EXAMINER

VO, TUNG T

ART UNIT

PAPER NUMBER

2621

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/581,004

Applicant(s)

OKAMOTO ET AL.

Examiner

Tung Vo

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5,8,9,11,12,14-20,24,26,29,30,32,37,43 and 44 is/are pending in the application.
- 4a) Of the above claim(s) 2-4,6,7,10,13,21-23,25,27,28,31,33-36 and 38-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,8,9,11,12,14-20,24,26,29,30,32 and 37 is/are rejected.
- 7) ☒ Claim(s) 43 and 44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/27/2006 has been entered.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 5, 8-9, 11-12, 14-20, 24, 26, 29-30, 32, and 37 rejected under 35 U.S.C. 103(a) as being unpatentable over Ejiri et al. (US 5,969,969) in view of in view of Kumamoto Kenji (JP 10-257482).

Re claims 1 and 37, Ejiri teaches a vehicle--operation assist for a vehicle (100 of figs. 33 and 37) mounted with a camera (120, 124 of fig. 33), said vehicle operation assist comprising: an imaging unit (120, 124, 125 of fig. 33) operable to generate a circumferential state image using an output image from the camera (124 of fig. 33), said circumferential state image viewed from synthetic-image generating unit (117 of fig. 33) operable to generate a synthetic image using the circumferential- state image (126a, 115a of fig. 33) and an assumed-movement pattern

image (114b and 116c of fig. 33) which is based on a predetermined driving operation of the vehicle (118 of fig. 33) and a display unit (160 of fig. 33) operable to display the synthetic image (figs. 37-42), the assumed-movement pattern image including a movement of the vehicle (the arrow shows forward movement of the vehicle (A, B, C of fig. 39) between a start position of the vehicle (when the vehicle prepares for parking, there would be a start position, 100 start position, the vehicle (100 of fig. 39) is not in a park position yet) and a parking position of the vehicle (the vehicle completely parked) in case of performing the predetermined driving operation (706, 707, 708 of fig. 38).

It is noted that Erjiri does not particularly teach a virtual viewpoint, said virtual viewpoint being different from a viewpoint of the camera as claimed.

However, Kenji teaches the synthetic image (42 of fig. 5-8) showing the car (46 of fig. 5) from a virtual point of view as three dimensional space (8 of fig. 8) that is converted from the actual viewpoint (6, 10, 11, 14, and 15 of fig. 2; 37 of fig. 3) so this suggests a virtual viewpoint as a three-dimensional space, said virtual viewpoint being different from a viewpoint of the camera.

Therefore, taking the teachings of Erjiri and Kenji as a whole, it would have been obvious to one skill of ordinary skill in the art to incorporate the teachings of Kenji into the image processing apparatus of Erjiri for displaying a generated synthetic image showing the vehicle from a virtual point of view using the real image captured from cameras.

Doing so would provide an always clean car circumference image can be seen by detecting the variation rate of the car body by the irregularity of a road surface by the acceleration sensor, feeding back to a display image, and removing the shake of an image.

Re claims 5, 8, 9, Erjiri further teaches the circumferential state image viewed from a predetermined viewpoint as a point fixed three-dimensional space or the vehicle (fig. 39), and the viewpoint converting unit is included that changes the predetermined viewpoint automatically or through an input from a driver (118 of figs. 33 and 37); wherein the assumed-movement pattern image includes virtual poles arranged on the outer edge of the vehicle movement area (A, B, C, and D of fig. 39); the synthetic-image generating unit superimposes a current-position camera in which the vehicle is present, on the circumferential-state image to generate the synthetic image (D and A of fig. 39).

Re claims 11 and 12, Erjiri further teaches wherein when actual driving operations corresponding to predetermined series of driving operations are started (130 of figs. 33 and 37; see also fig. 38), the synthetic-image generating unit fixes positional relation between the assumed-movement pattern image and the circumferential-state image at the point of time when the actual driving operations are started and generates the synthetic image (706, 707 and 708 of fig. 38); a positional-information storing unit is included which stores positional information of the whole or a part of the assumed-movement pattern image with regard to the whole or a part of the video data for the circumferential-state image on the synthetic image when the actual driving operations are started (116 of figs. 33 and 37), and; the synthetic-image generating unit (117 of figs. 33 and 37) fixes the positional relation in accordance with the positional information.

Re claims 14-20, Erjiri further teaches wherein a final-position inputting unit for inputting a final position which is a position of the vehicle at end of the movement and a start-position determining unit for obtaining a start position which is a position at start of the movement corresponding to the input final position in accordance with the-an assumed-

Art Unit: 2621

movement pattern are included (709 of fig. 38), and the synthetic-image generating unit superimposes the input final position and the start position corresponding to the input final position on the circumferential-state image to generate the synthetic image (fig. 39); a start-position guiding unit (118a of fig. 33 and 37) is included which guides the vehicle to the start position by automatically controlling driving of the vehicle; an assumed-movement-pattern storing unit (116b of figs. 33 and 37) holds a plurality of assumed-movement patterns; the assumed-movement-pattern storing unit holds a plurality of assumed- movement patterns (116b of fig. 33 and 37), and a pattern selecting unit (118 of figs. 33 and 37) is included which automatically selects the assumed- movement pattern through an input from a driver or a predetermined driving operation; wherein the pattern correcting unit (709, 710, and 711 of fig. 38) is included which updates and corrects content of the assumed-movement pattern stored in the assumed- movement-pattern storing unit; wherein the pattern correcting unit updates and corrects the assumed- movement pattern (140 of fig. 37, Note updates and corrects the current positions of the vehicle) in accordance with the vehicle positions at start and end of the corrected movement input from a driver (NOTE the guidance information selector (118 of figs. 33 and 37) then selects the most proper guidance information (118a of figs. 33 and 37) for the driver from the viewpoint of safety, allowance, etc. according to whether or not it is possible for the driver to judge the information subjectively. The selected result is output onto the display unit (160 of figs. 33 and 37), such as an instrument panel, console panel and so on); wherein the pattern correcting unit updates and corrects the assumed- movement pattern in accordance with an actual driving operation (.

Re claims 24, 26, 29, 30, and 32, Erfiri further teaches wherein when the viewpoint converting unit changes the predetermined viewpoint, the viewpoint converting unit fixes the predetermined viewpoint to the vehicle before the actual driving operations corresponding to the predetermined series of driving operations are started (fig. 40) and wherein the assumed-movement pattern image includes a circumscribed area on a space through which the vehicle passes when the predetermined series of driving operations are performed (fig. 39); wherein the assumed-movement includes a change from a backward movement to a forward movement or from a forward movement to a backward movement in the predetermined series of driving operations (fig. 40); wherein an obstacle inputting unit is included which is able to input a position of an obstacle area in an image to the display unit for displaying the synthetic image (fig. 34, elements x and 100b); wherein the pattern correcting unit updates and corrects the assumed-movement patterns in accordance with a position of an obstacle area input from a driver (JUDGMENT of fig. 35).

Response to Arguments

2. Applicant's arguments filed 06/27/2006 have been fully considered but they are not persuasive.

The applicant argued that Ejiri does not disclose a synthetic image that provide two difference images superimposed together on as single image, and a start position of the vehicle and a parking position of the vehicle, page 9 of the remarks.

The examiner respectfully disagrees with that applicant. It is submitted that the claimed feature calls for generating a synthetic image using the image of the vehicle and the assumed

Art Unit: 2621

movement pattern of the vehicle as taught by Ejiri (fig. 39, Note the image of the vehicle 100 and the movement pattern (B of fig. 39) (see also figs 34-35), and Ejiri suggests the assumed-movement pattern image including a movement of the vehicle (the arrow shows forward movement of the vehicle (A, B, C of fig. 39) between a start position of the vehicle (when the vehicle prepares for parking, there would be a start position, 100 start position, the vehicle (100 of fig. 39) is not in a park position yet) and a parking position of the vehicle (the vehicle completely parked) in case of performing the predetermined driving operation (706, 707, 708 of fig. 38), wherein the display (160 of fig. 33, see also fig. 39) for displaying the synthetic image (figs. 39-42).

It is acknowledged that the pointed out figure 7 shows the synthetic image includes the surrounding space around the vehicle plus the assumed movement of the vehicle, these features are not claimed. Therefore, the argument is not persuasive.

Allowable Subject Matter

3. Claims 43 and 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

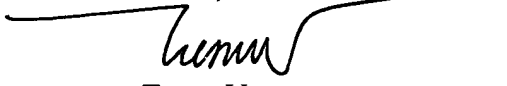
4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the previous Office Action

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tung Vo
Primary Examiner
Art Unit 2621